



1000

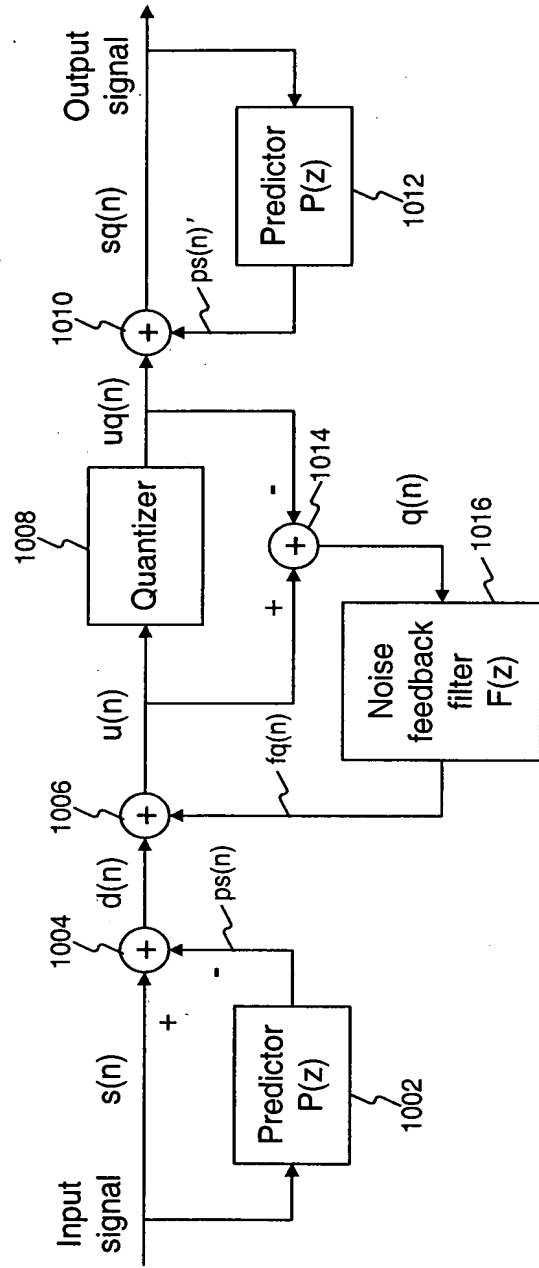


Figure 1 Conventional Noise Feedback Coding

1050

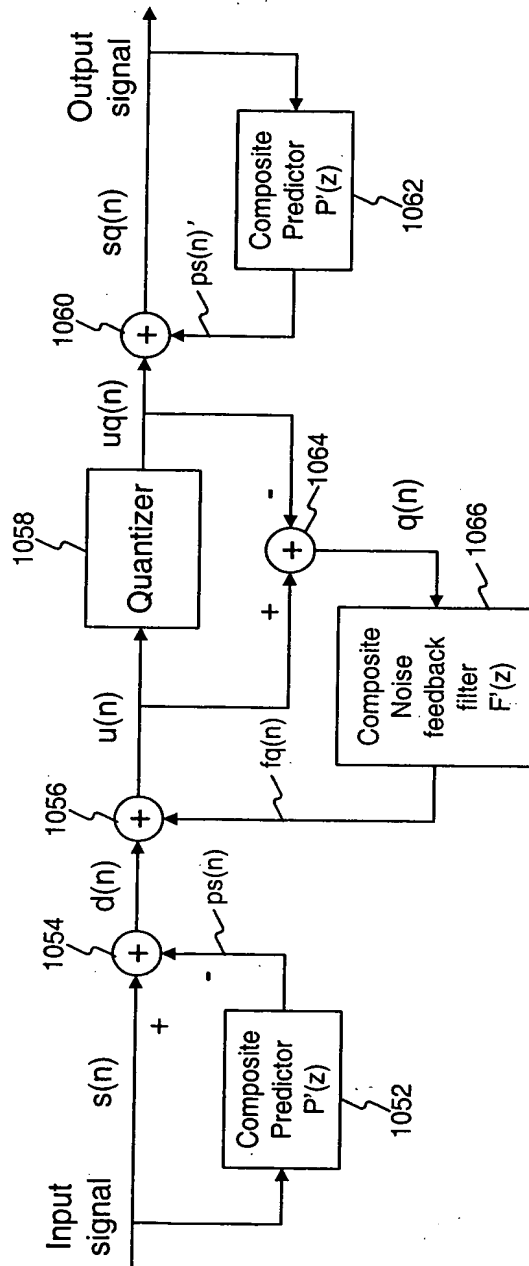


Figure 1A Noise Feedback Coding Using Composite Short-Term and Long-Term Predictors and Composite Short-Term and Long-Term Filter

2000

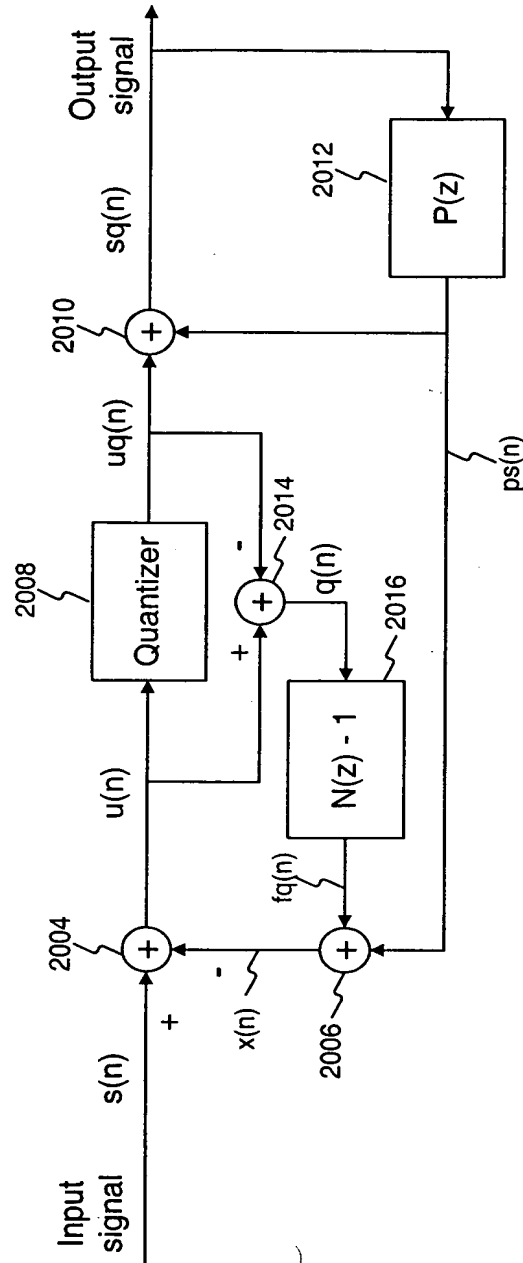


Figure 2 An alternative form of conventional Noise Feedback Coding



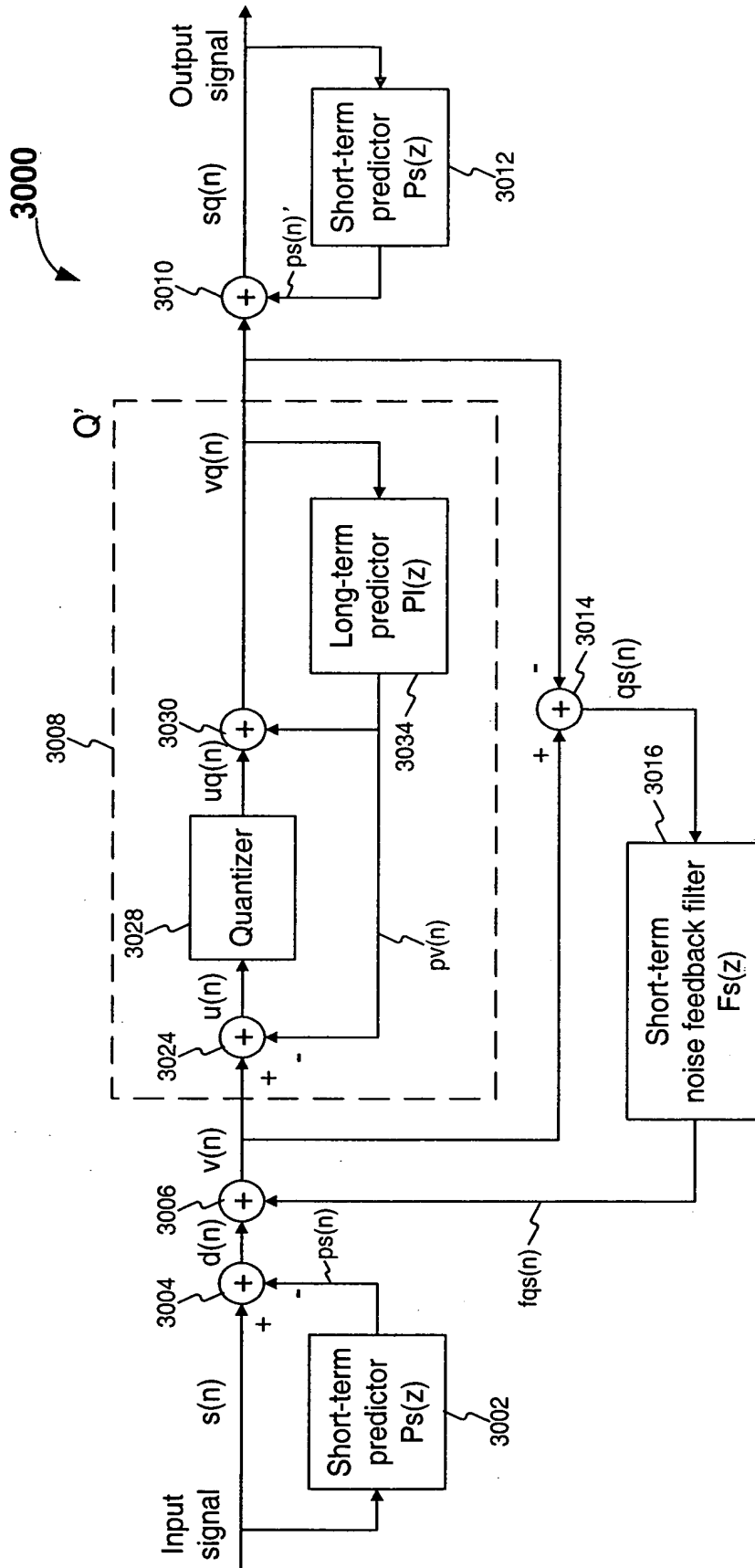


Figure 3 Noise Feedback Coding with short-term and long-term prediction but only short-term noise spectral shaping

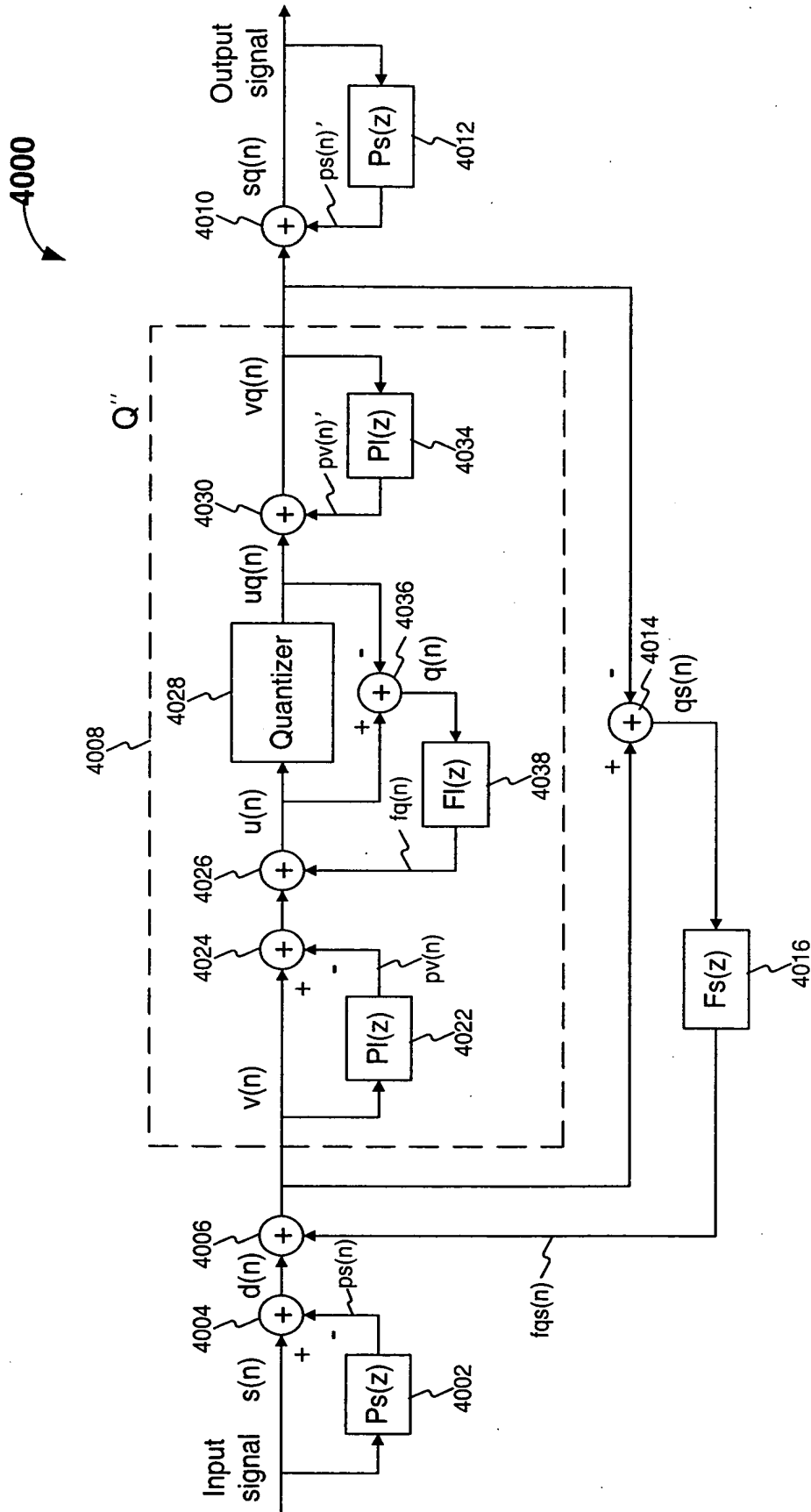


Figure 4 Nested two-stage Noise Feedback Coding structure with short-term and long-term prediction and short-term and long-term noise spectral shaping

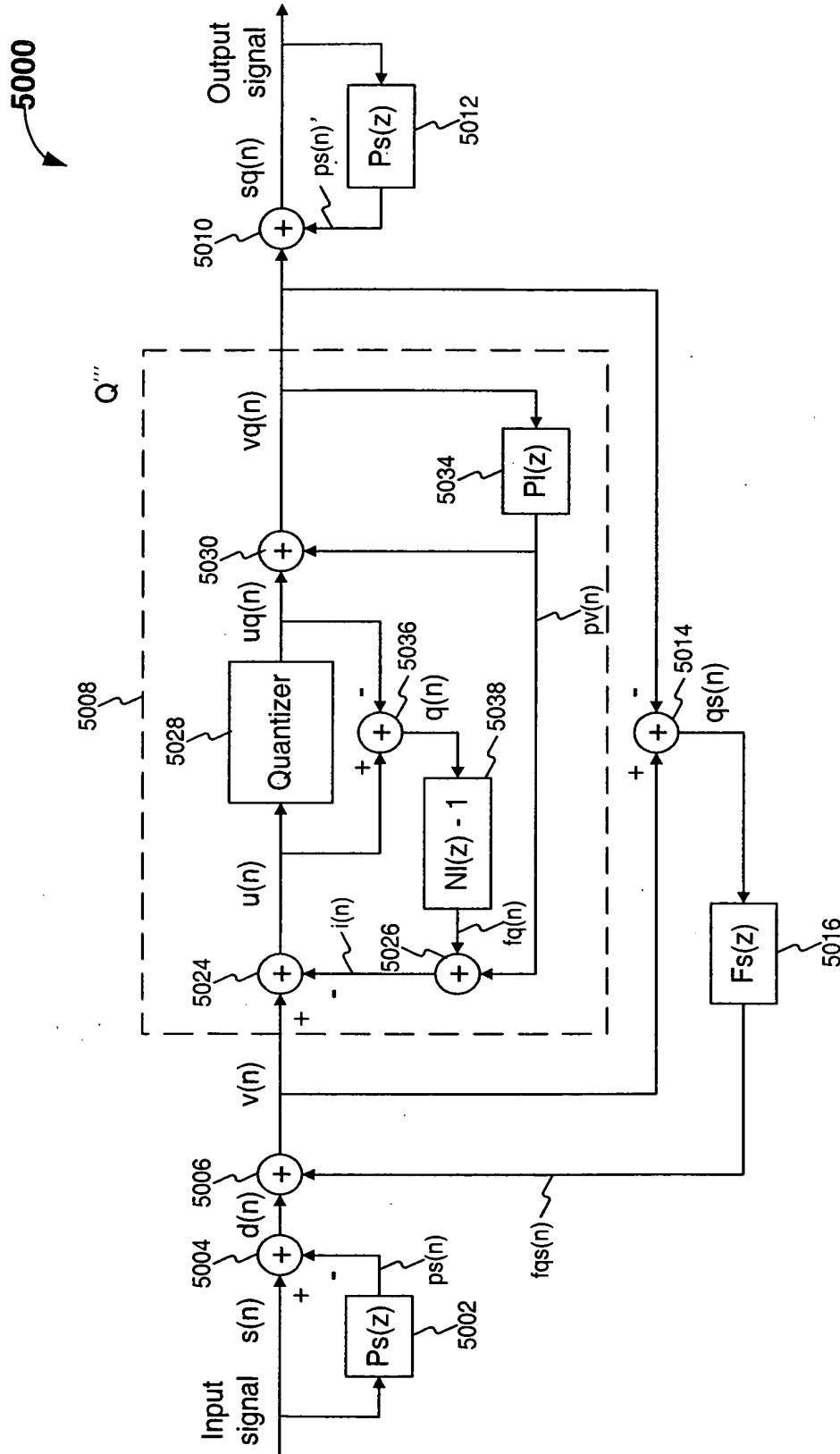


Figure 5 An alternative nested two-stage Noise Feedback Coding structure with short-term and long-term prediction and short-term and long-term noise spectral shaping

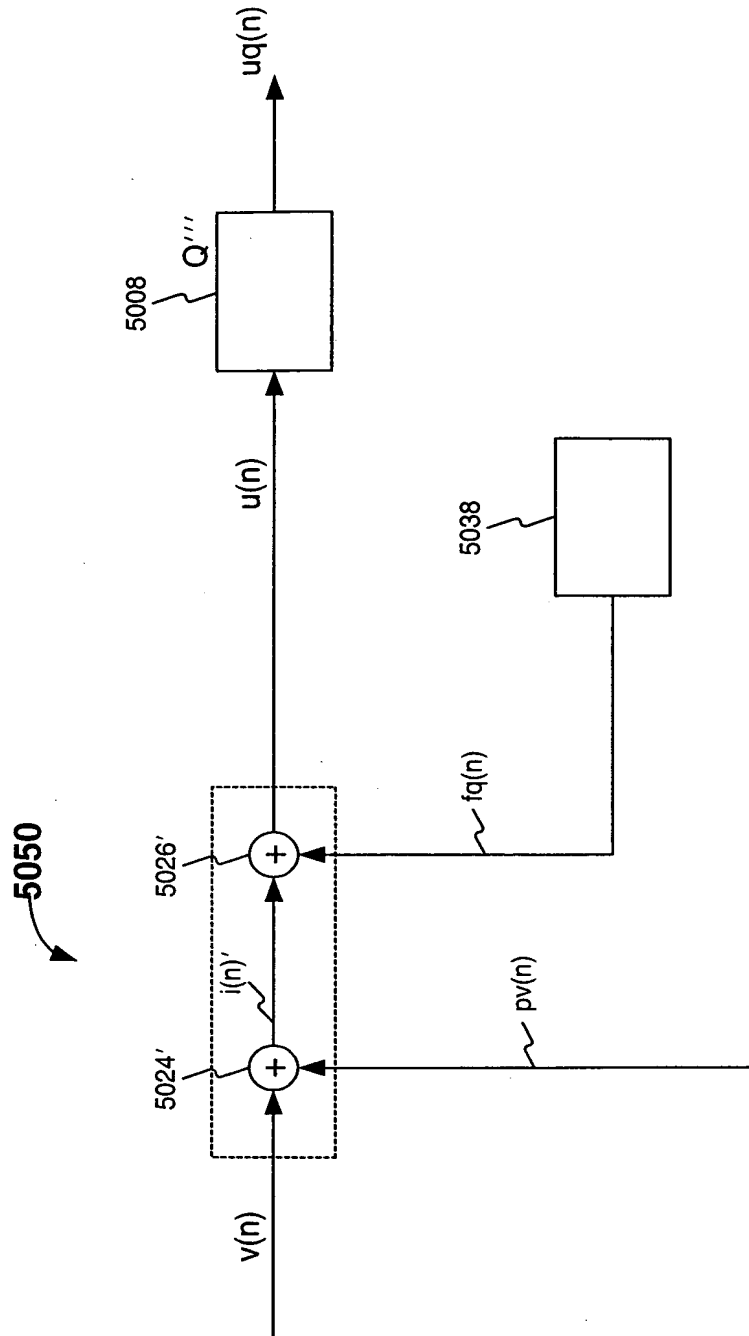


FIG. 5A



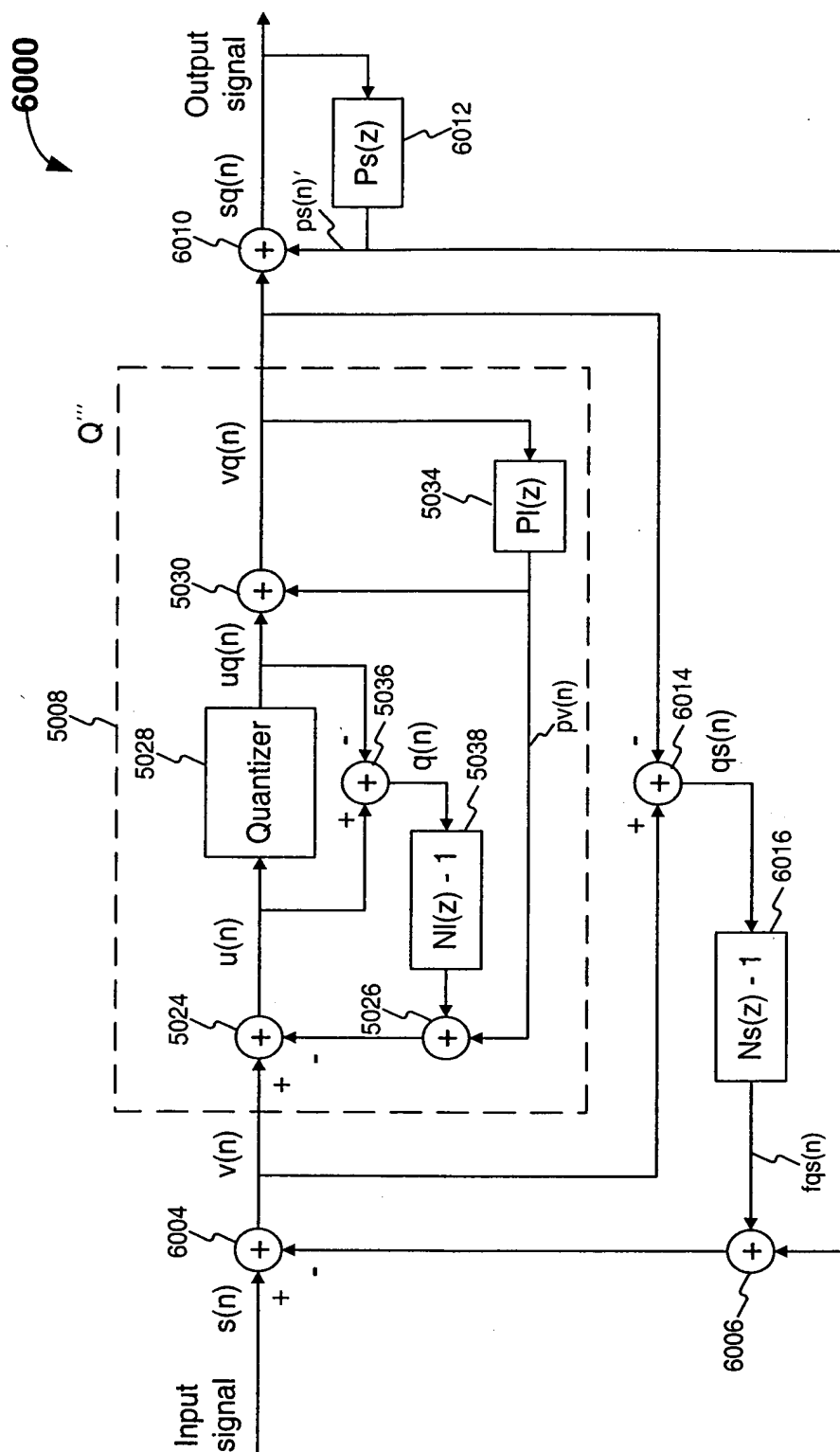


Figure 6 Another alternative nested two-stage Noise Feedback Coding structure with short-term and long-term prediction and short-term and long-term noise spectral shaping

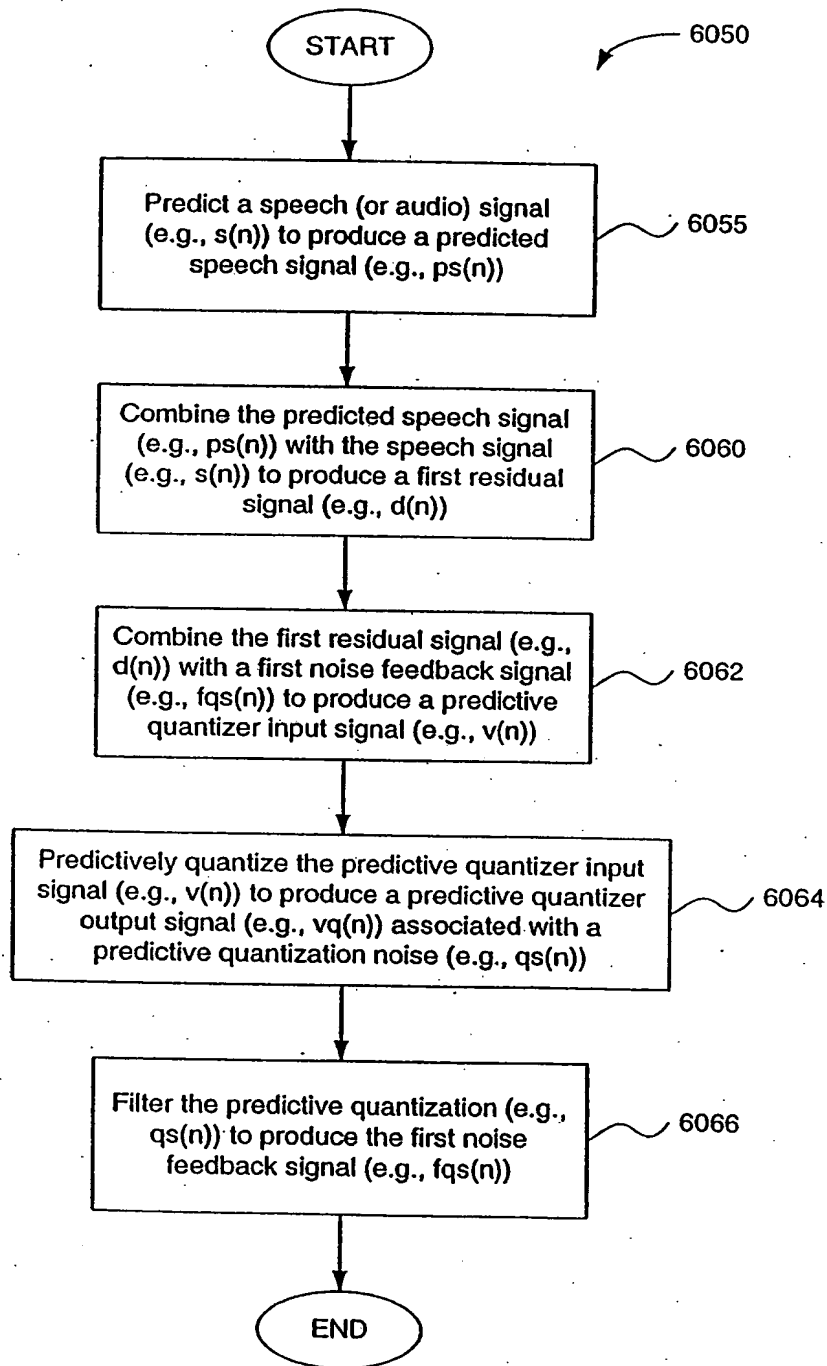


FIG. 6A

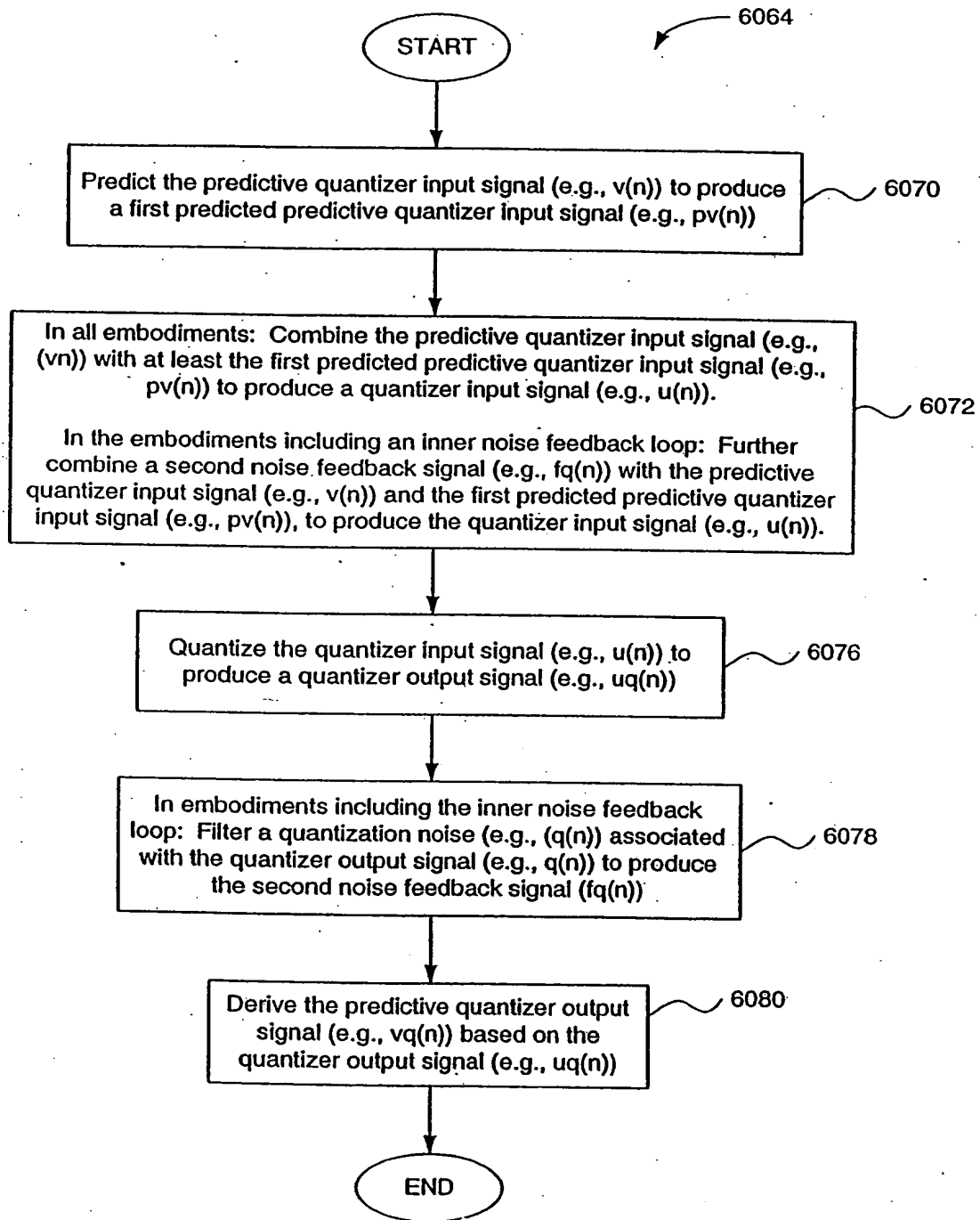


FIG. 6B

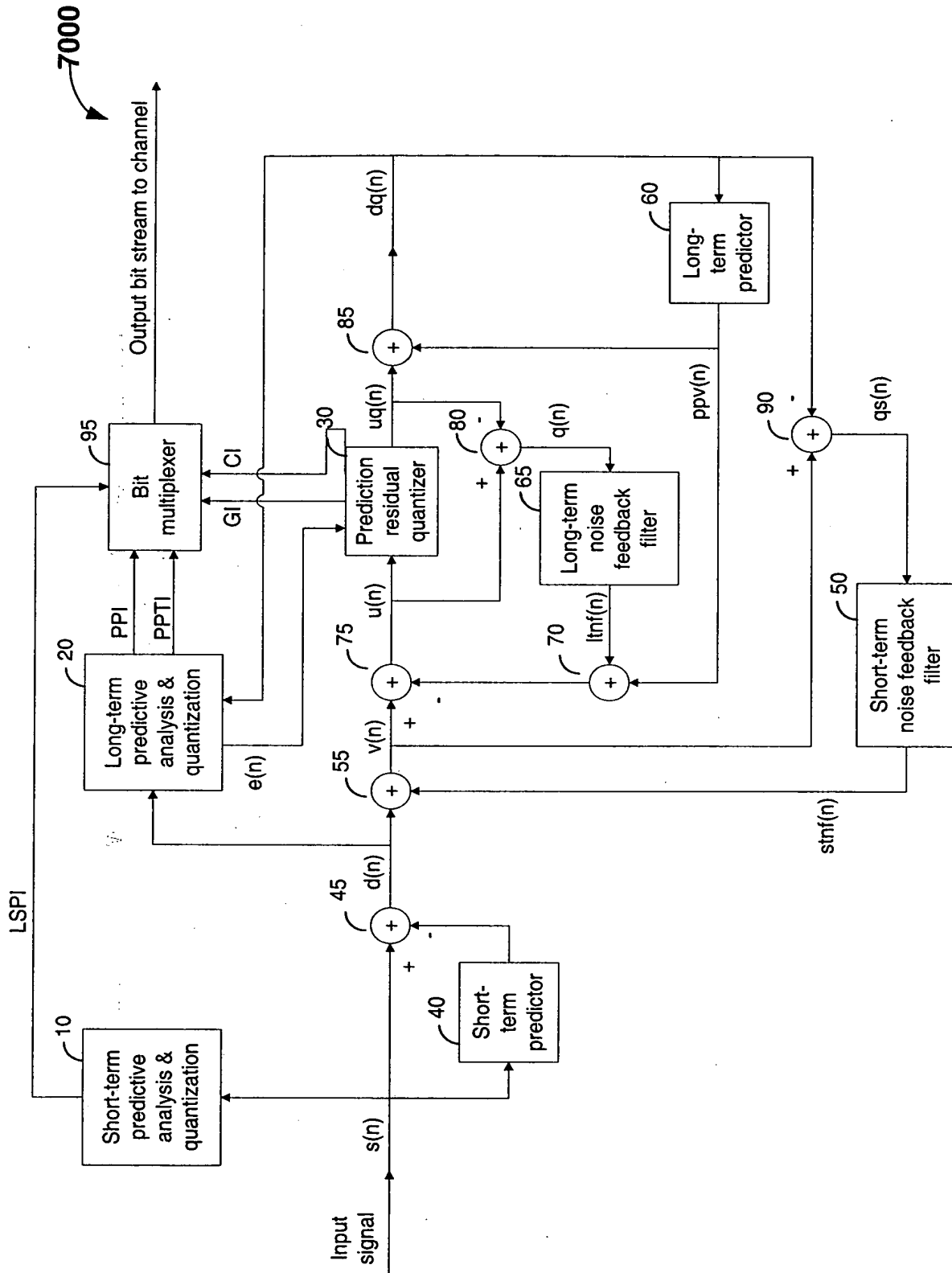


Figure 7 Encoder of a nested two-stage noise feedback codec (TSNFC)

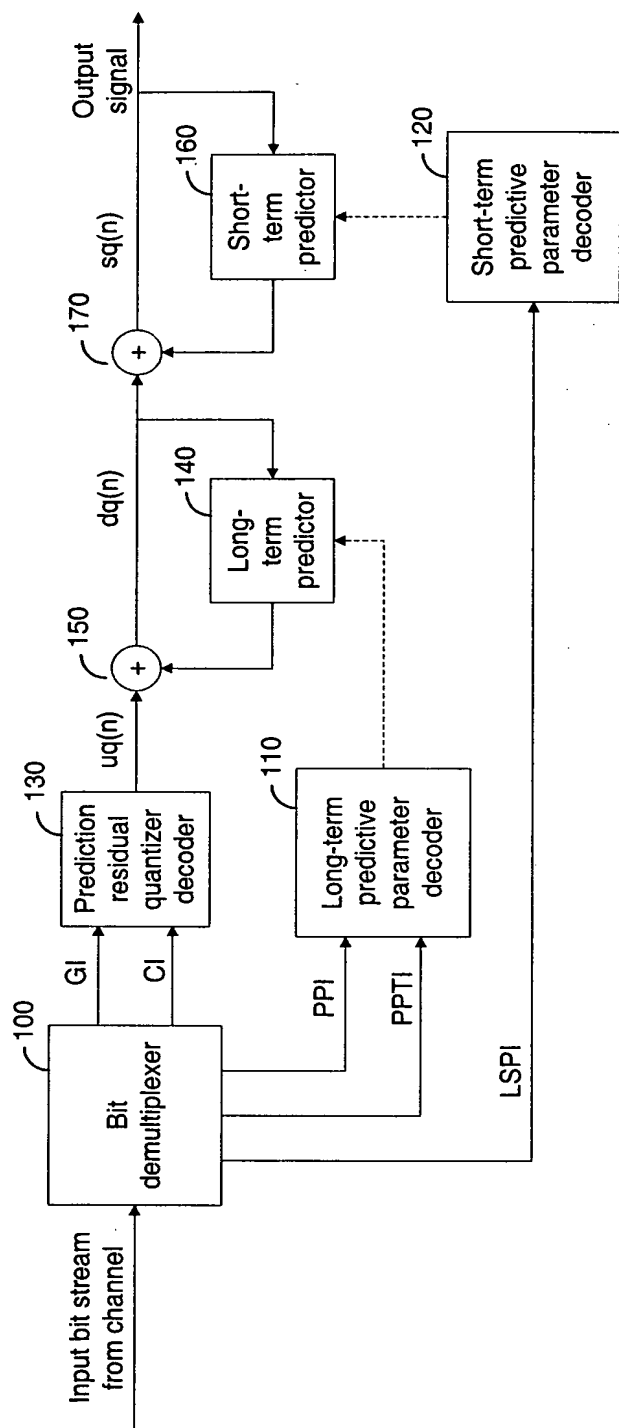


Figure 8 Decoder corresponding to the TSNFC encoder in Fig. 7

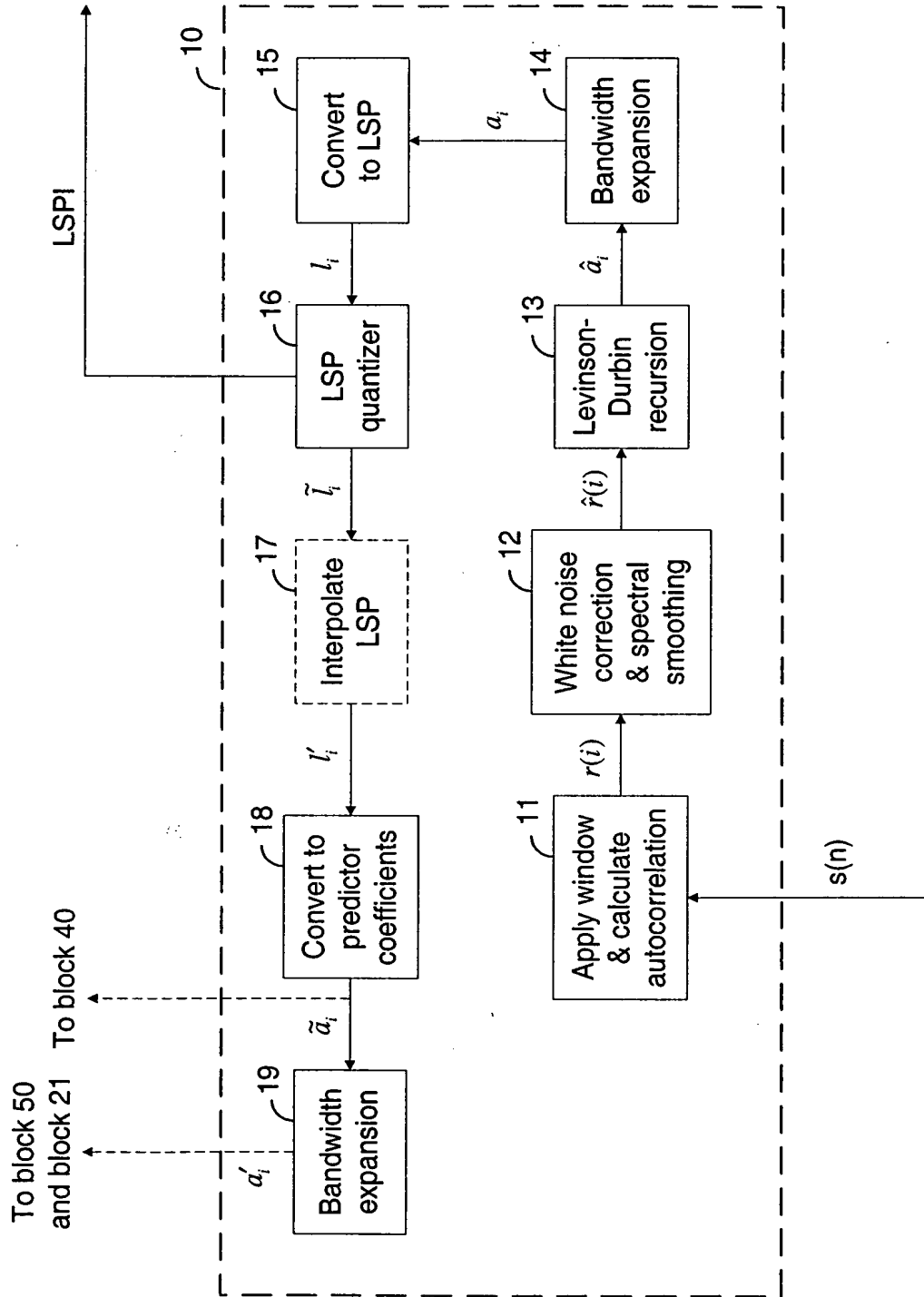


Figure 9 Short-term predictive analysis and quantization (block 10)

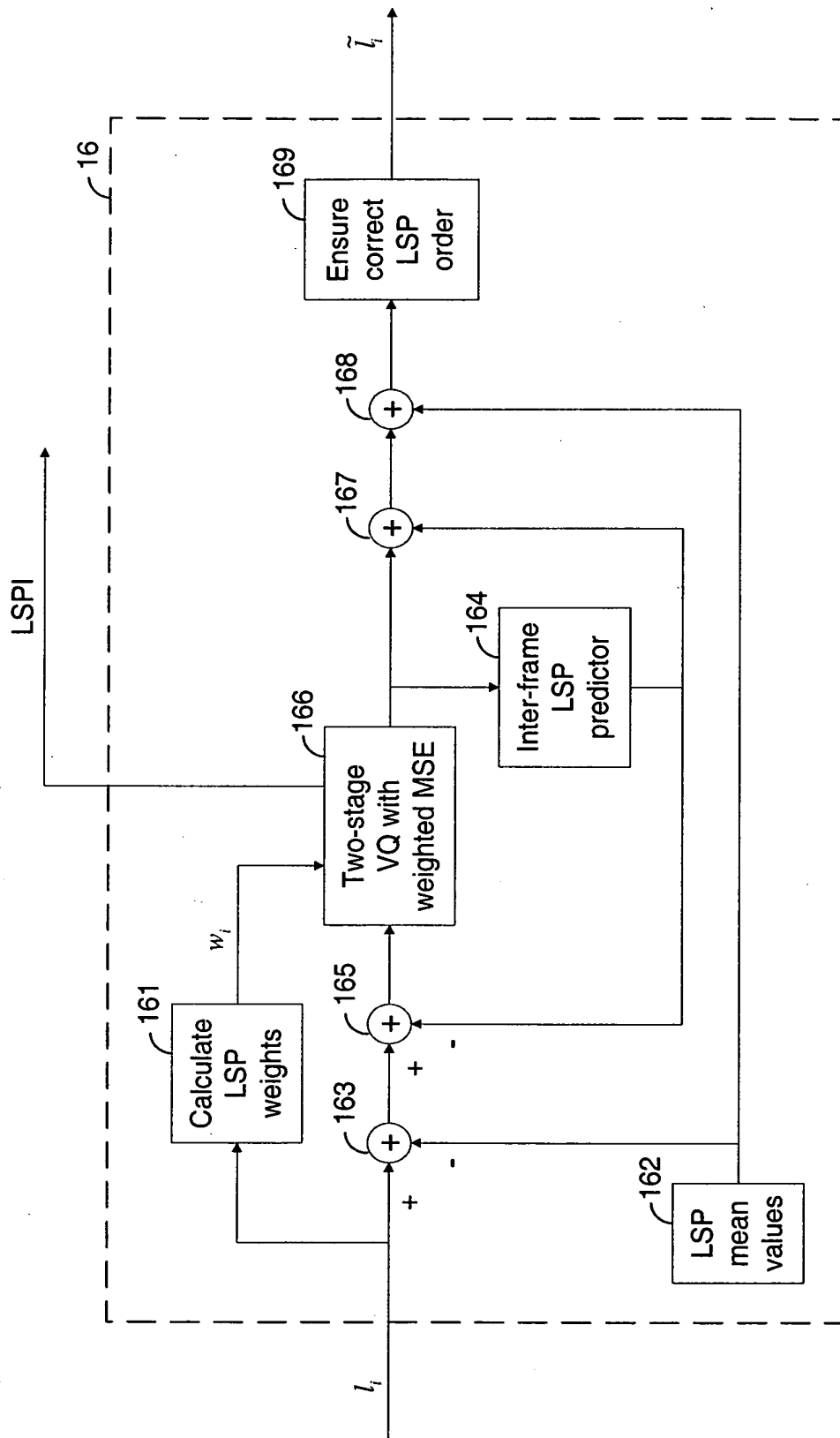


Figure 10 LSP quantizer (block 16)



Figure 11 Long-term predictive analysis and quantization (block 20)



Figure 12 Prediction residual quantizer (block 30)

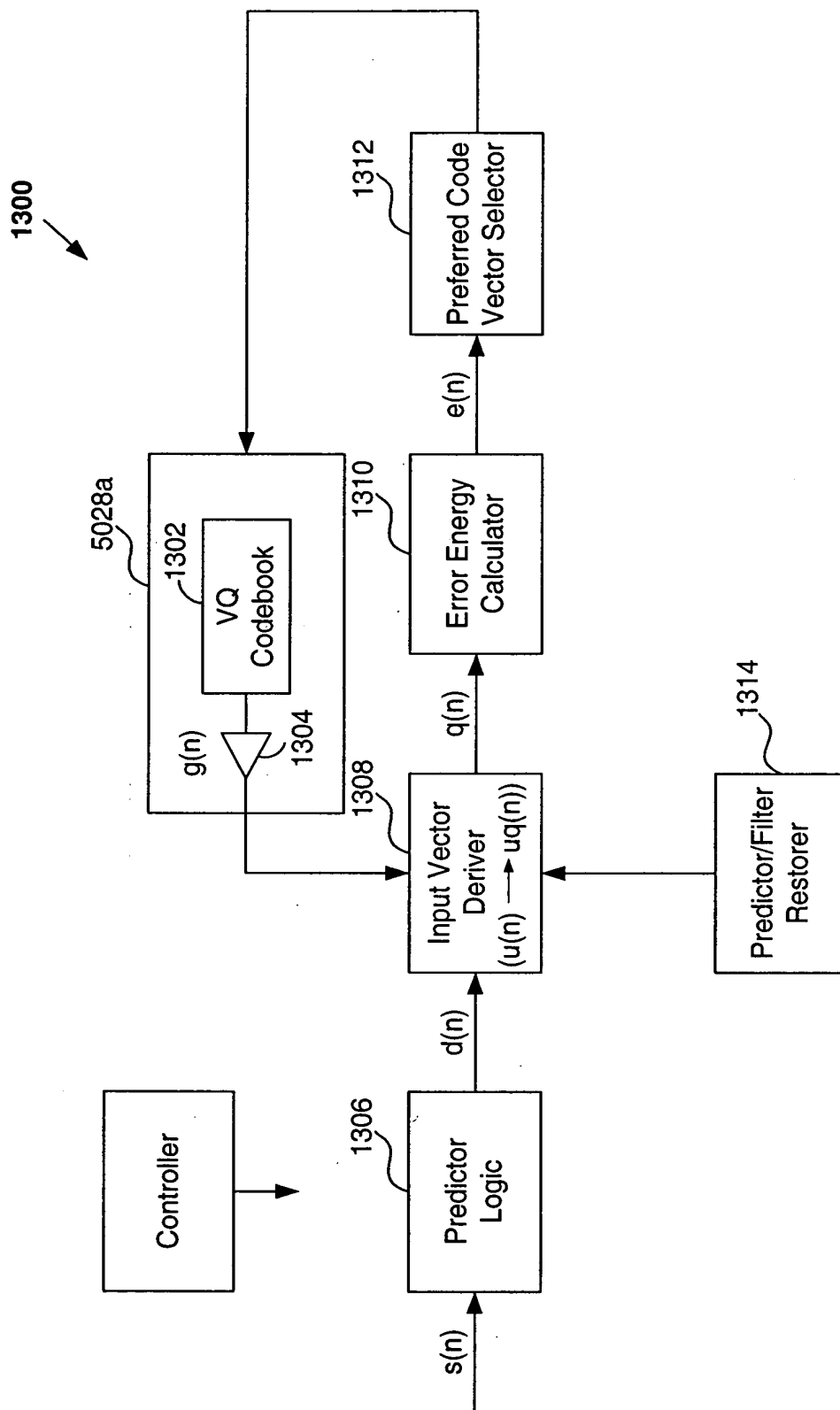
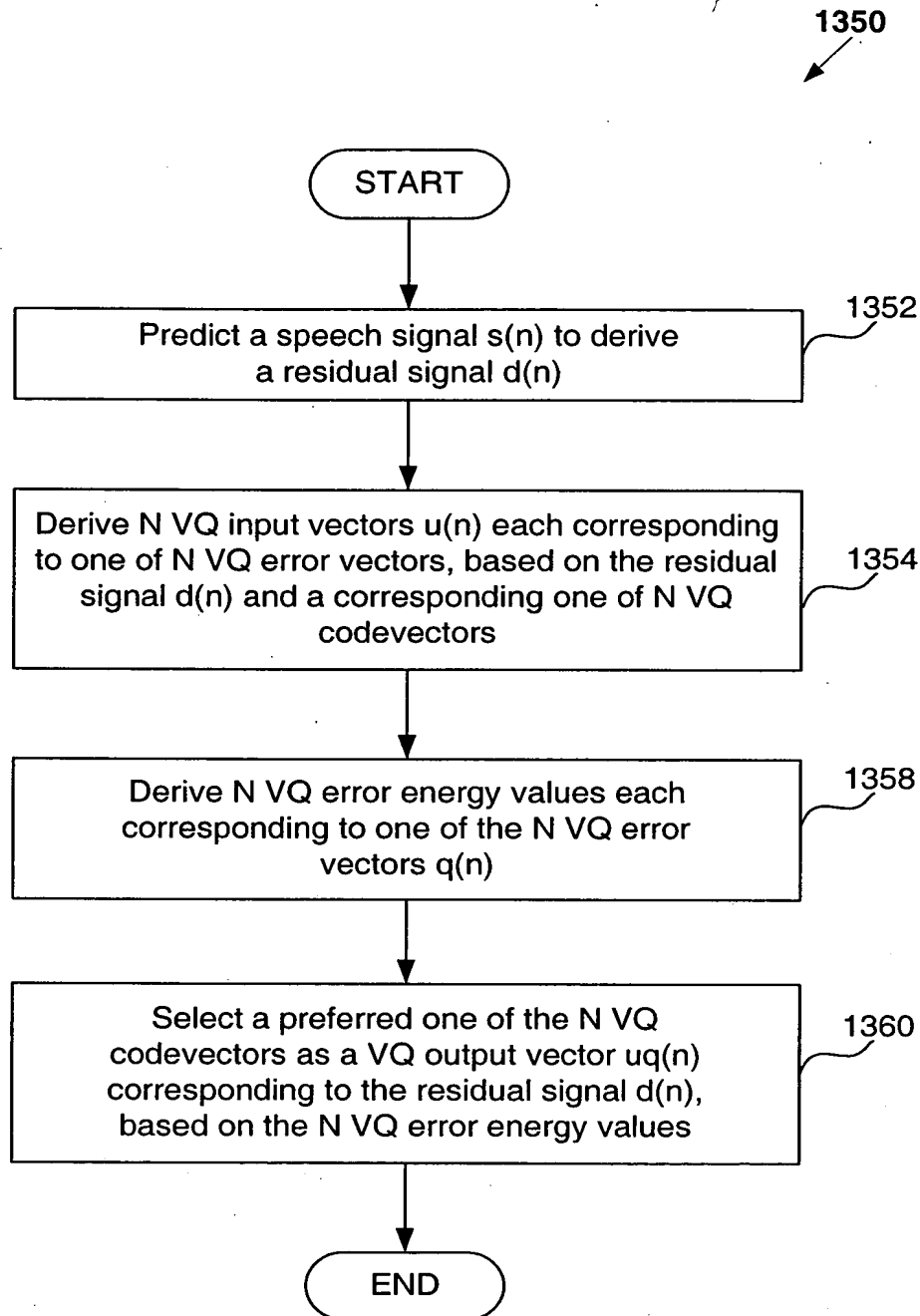
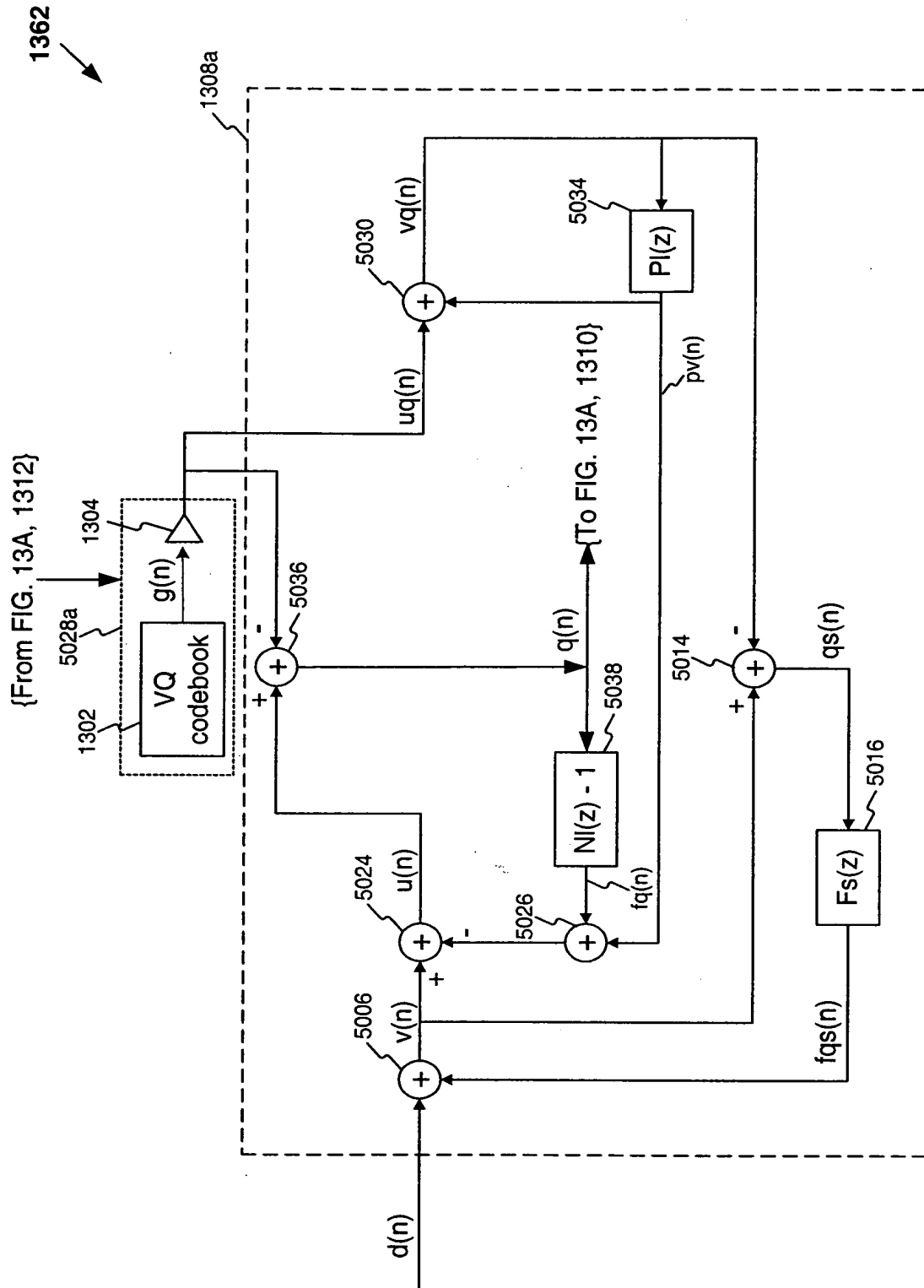


FIG. 13A

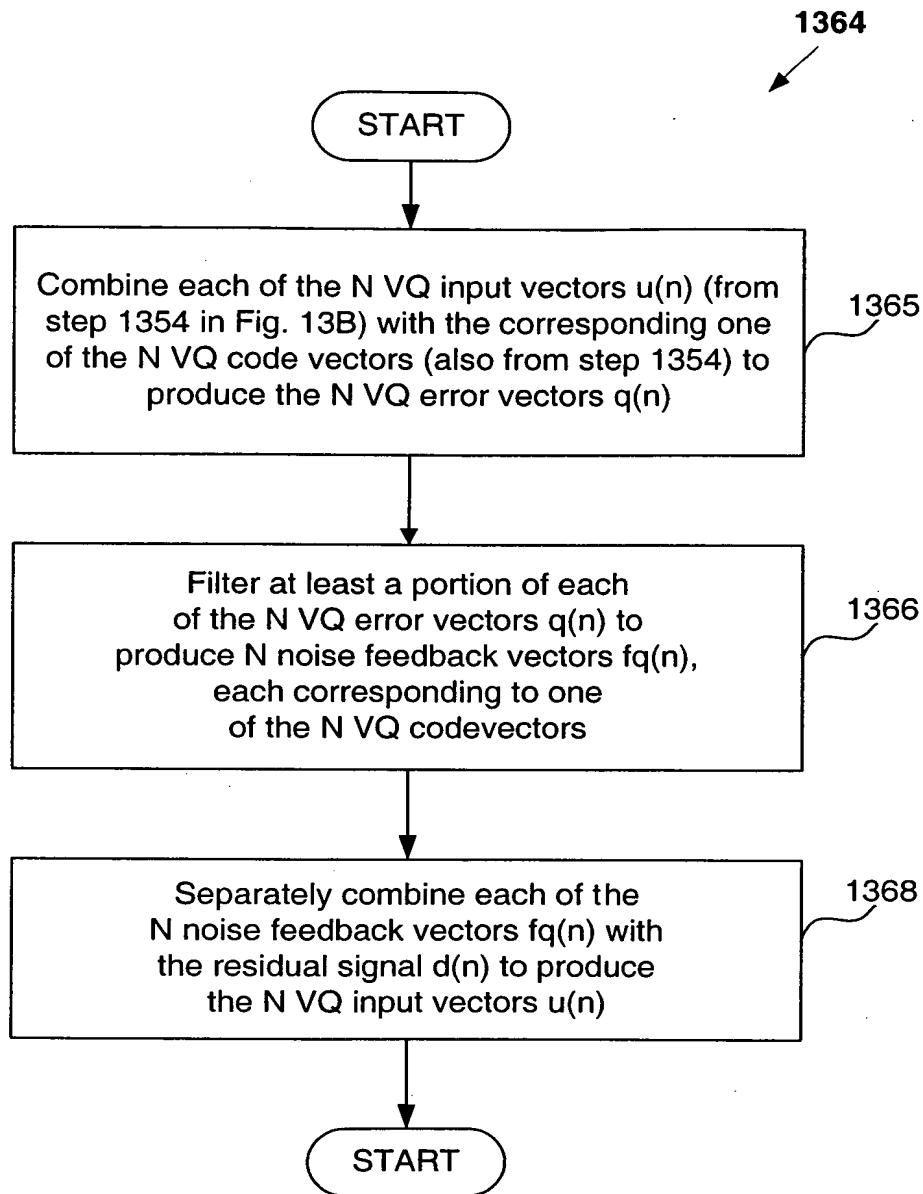


**FIG. 13B**

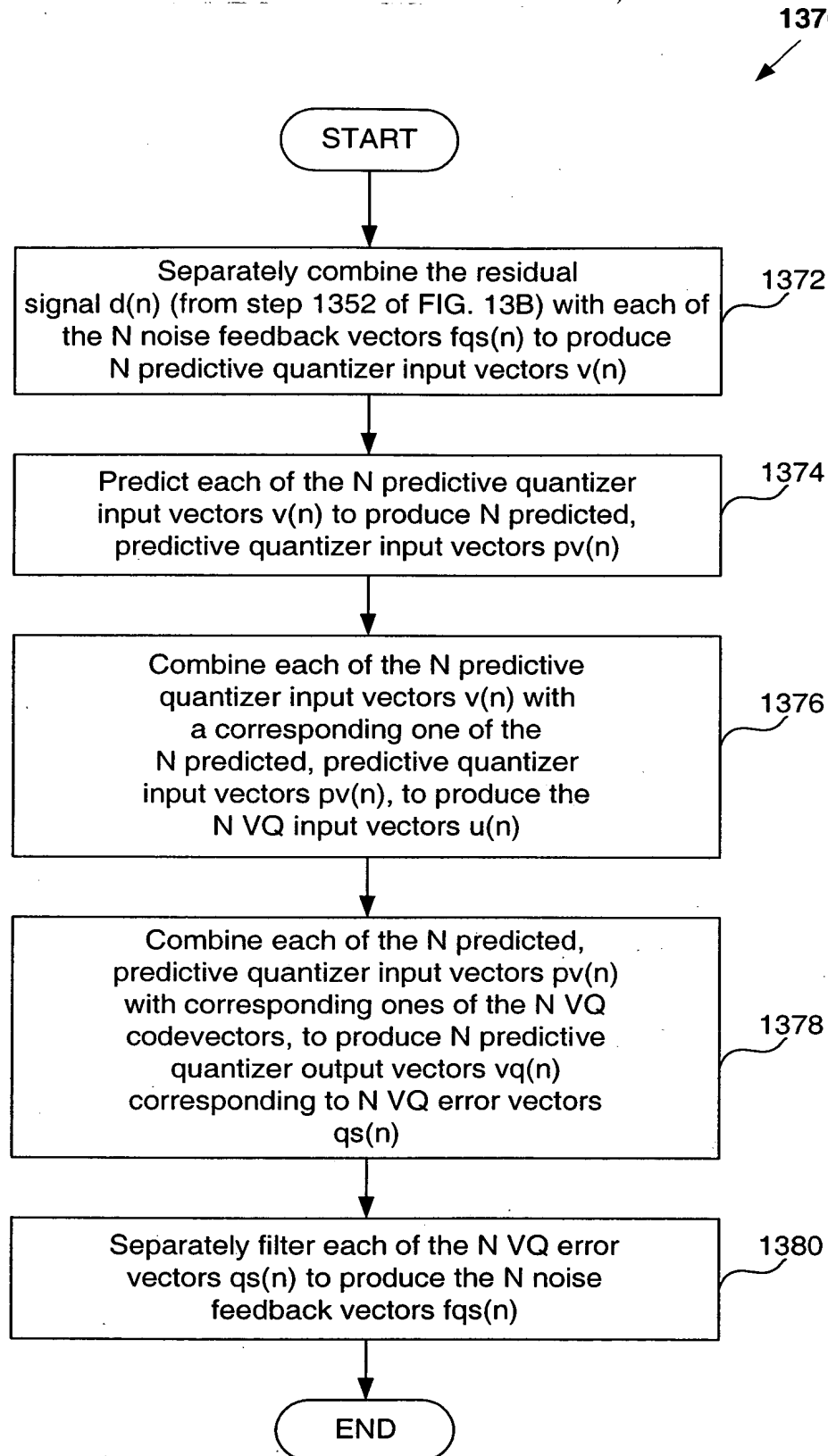


The portion of the codec structure that is used in prediction residual VQ codebook search of the two-stage noise feedback codec of Fig. 5.

**FIG. 13C**



**FIG. 13D**



**FIG. 13E**

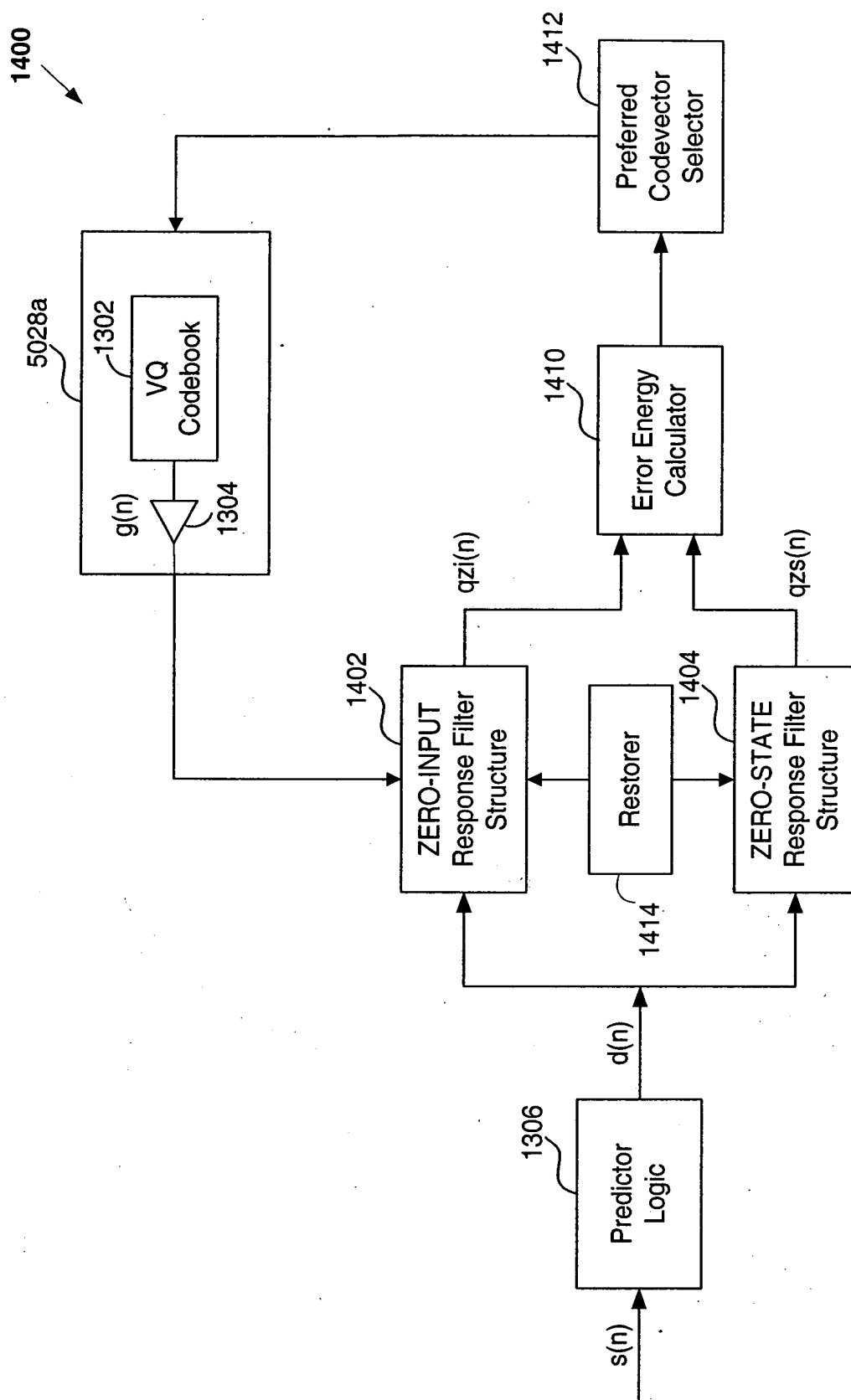
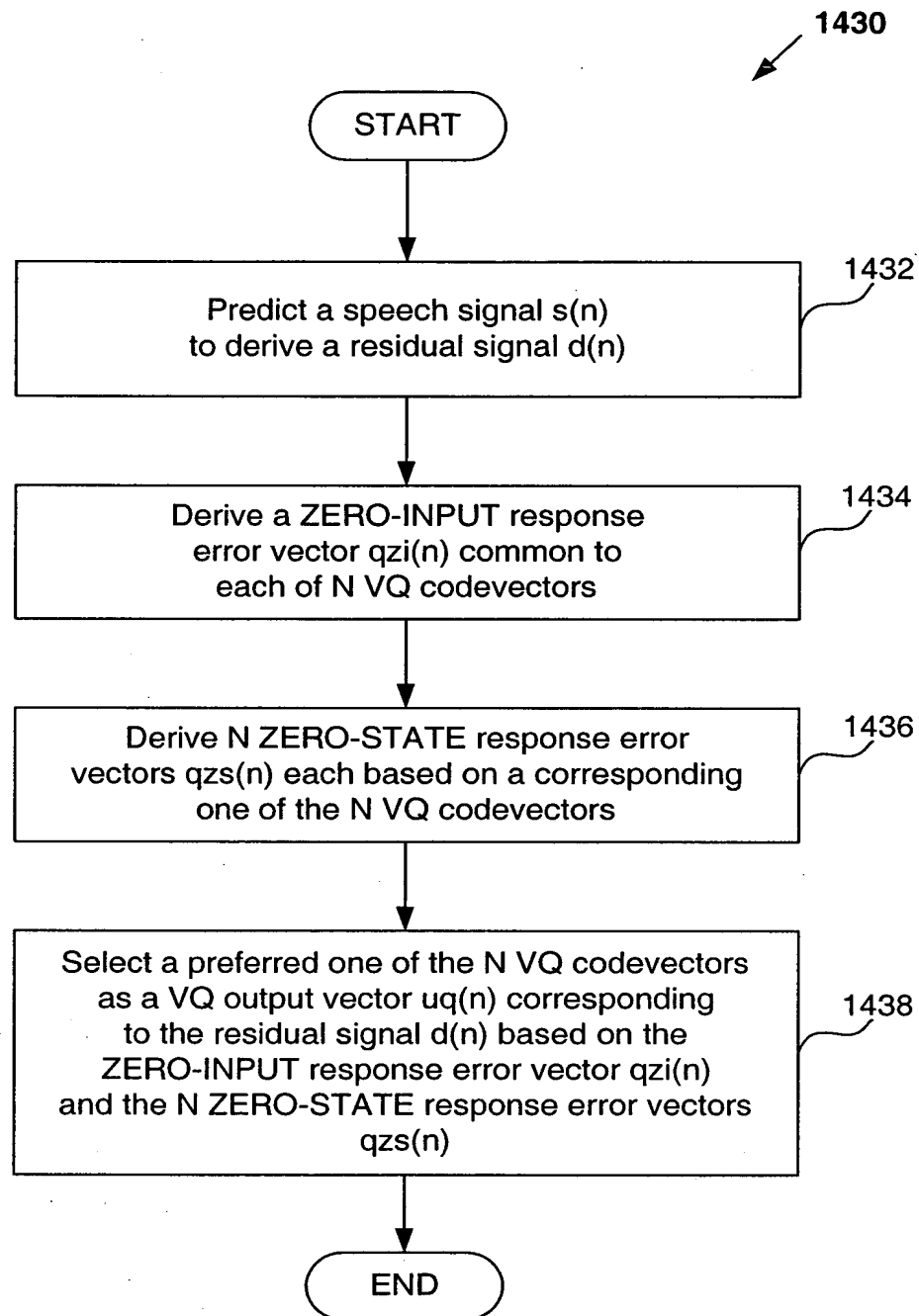


FIG. 14A



**FIG. 14B**



1402a

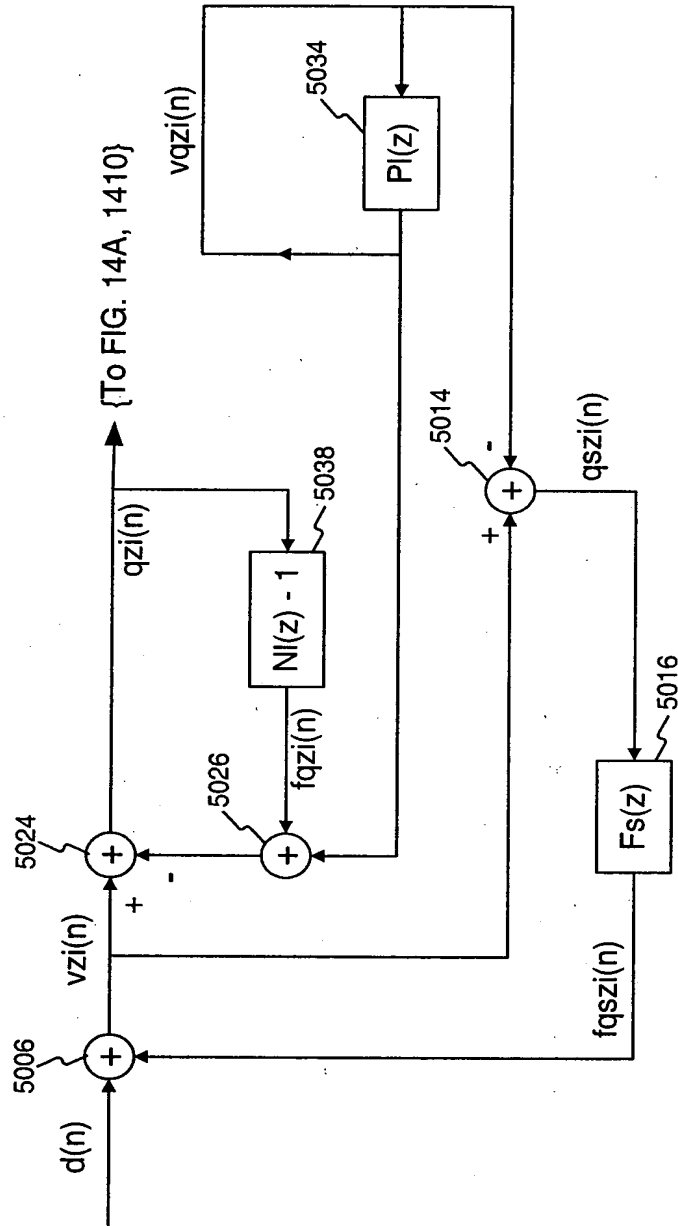
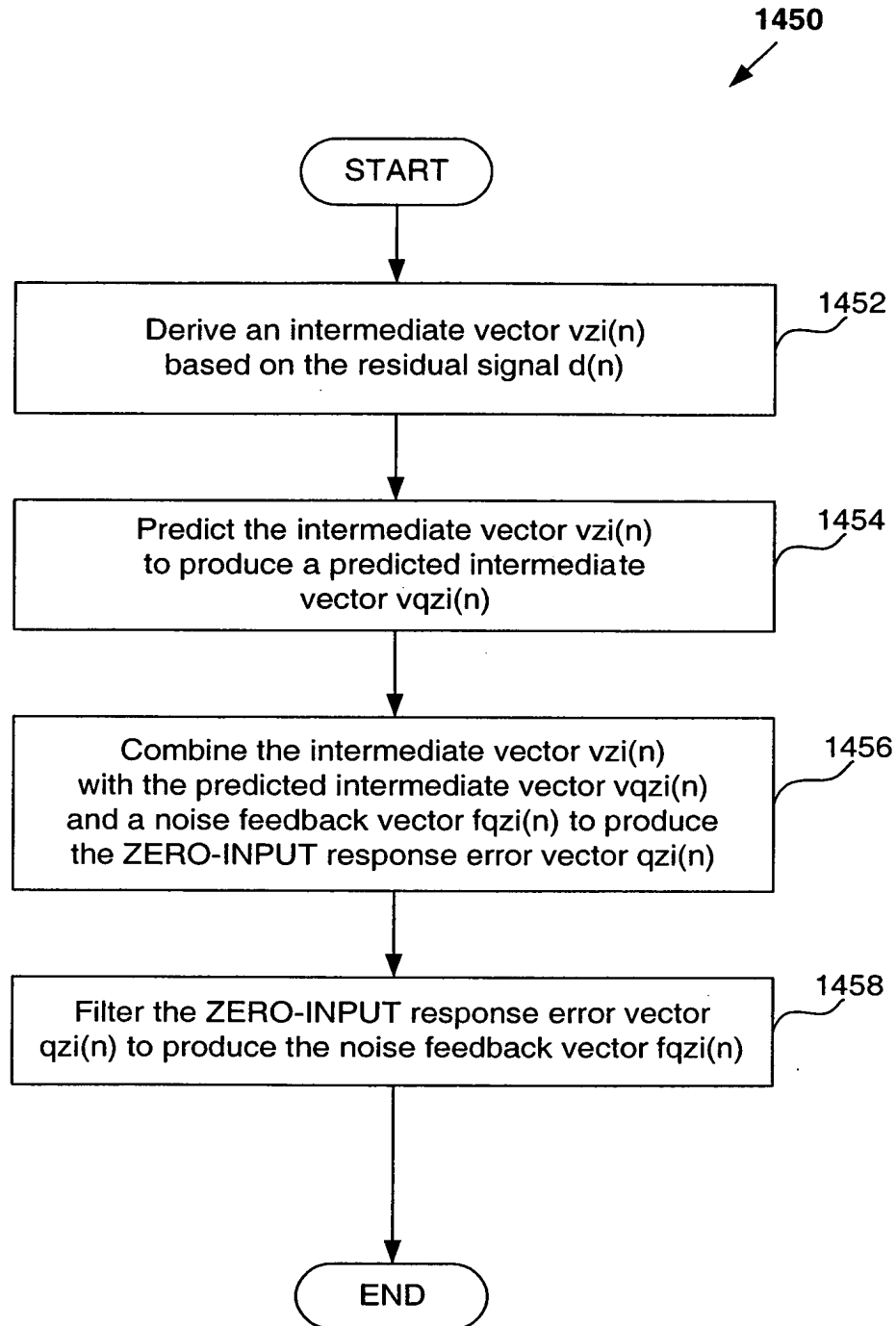


FIG. 14C

Filter structure during the calculation of the zero-input response of  $q(n)$  of Fig. 13C.



**FIG. 14D**

1470

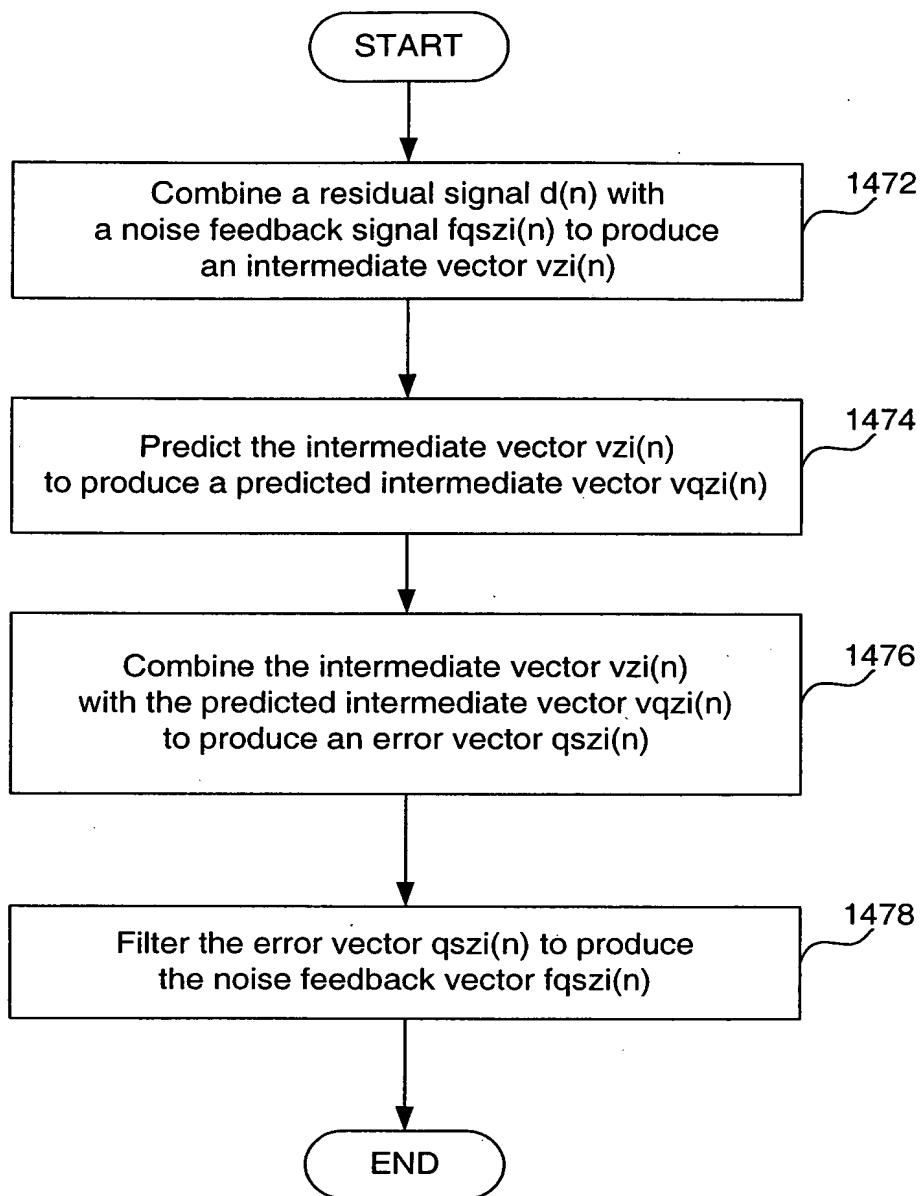
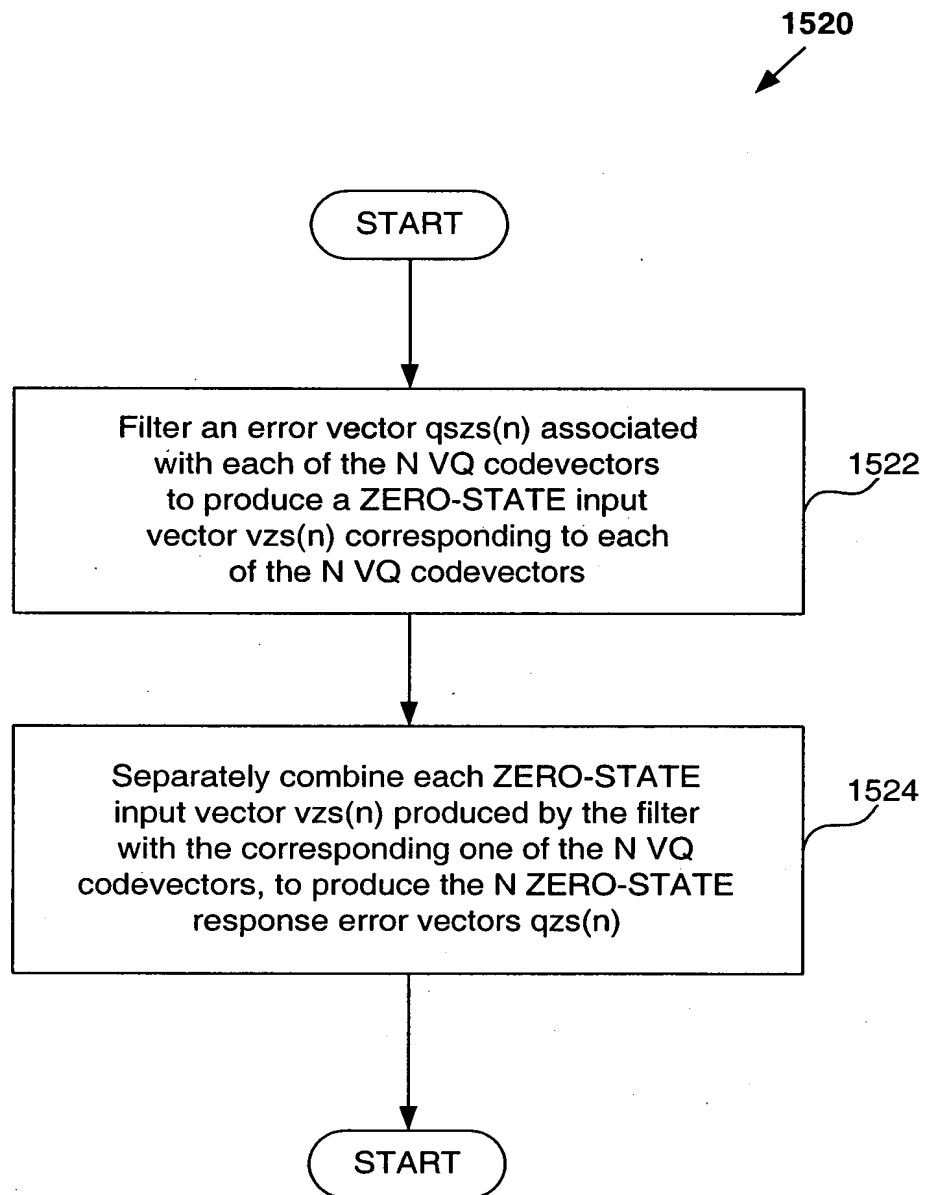


FIG. 14E

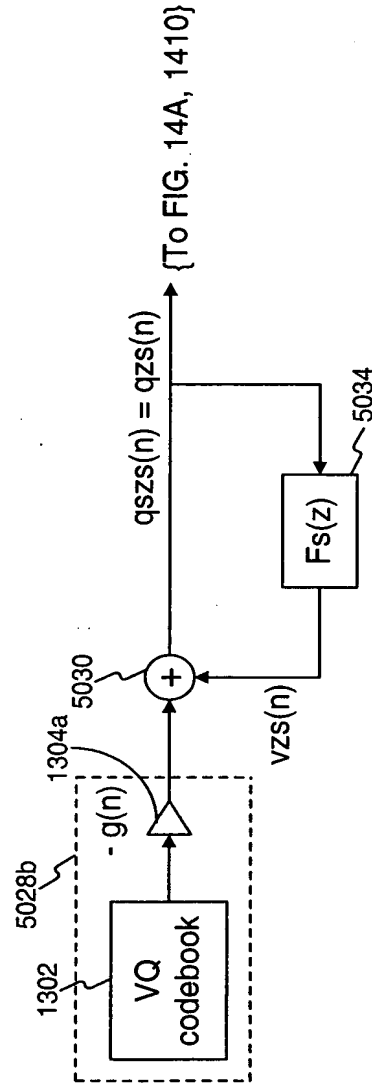


**FIG. 15A**



**FIG. 15B**

1404b



A filter structure equivalent to the structure in Fig. 15A.

FIG. 16A

1620

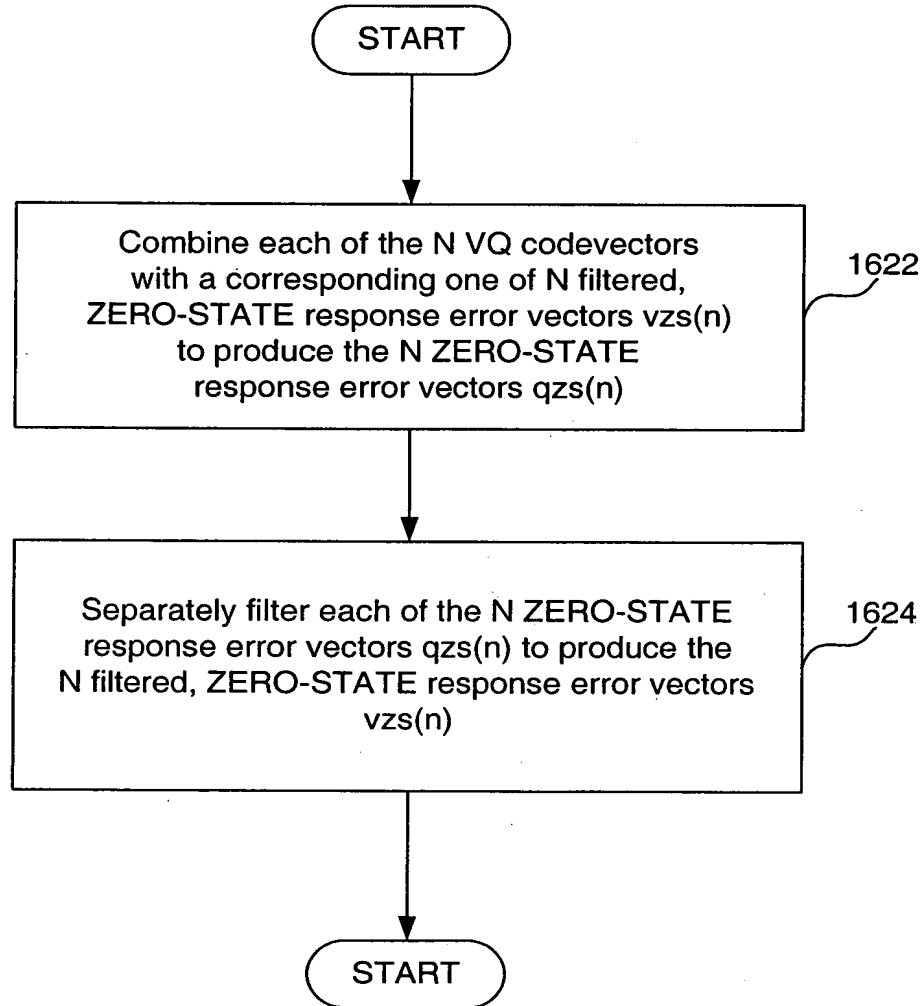
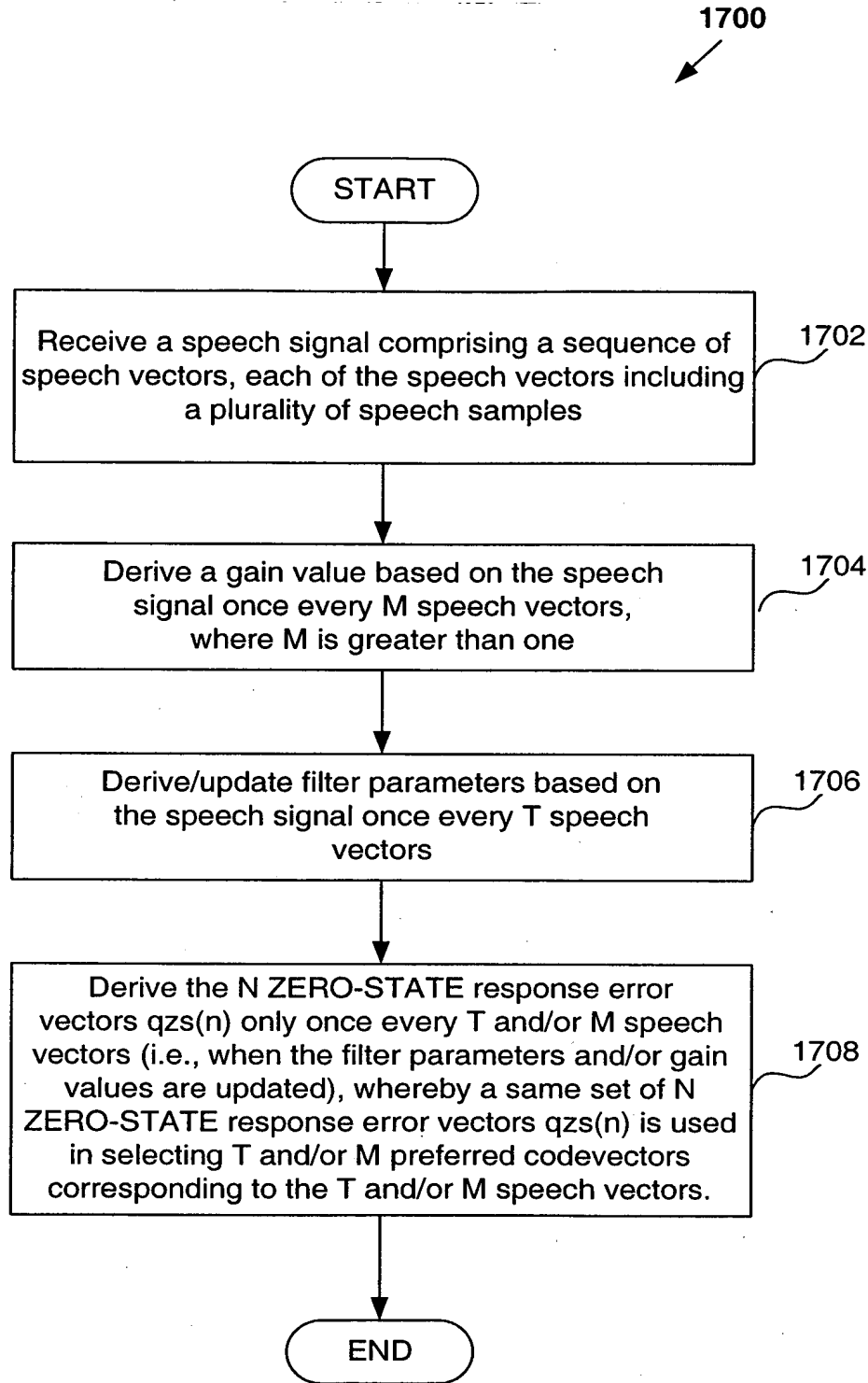
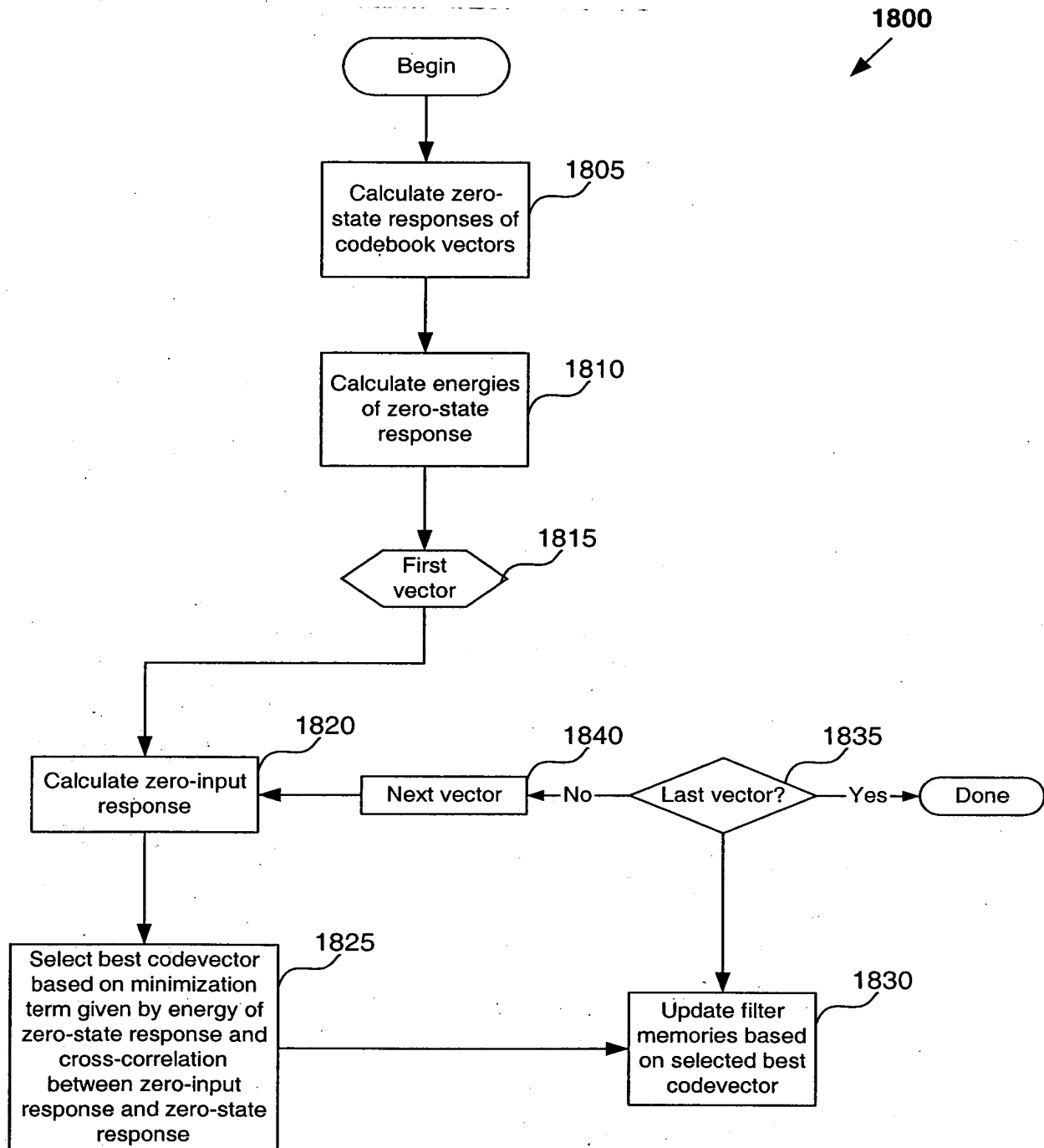


FIG. 16B

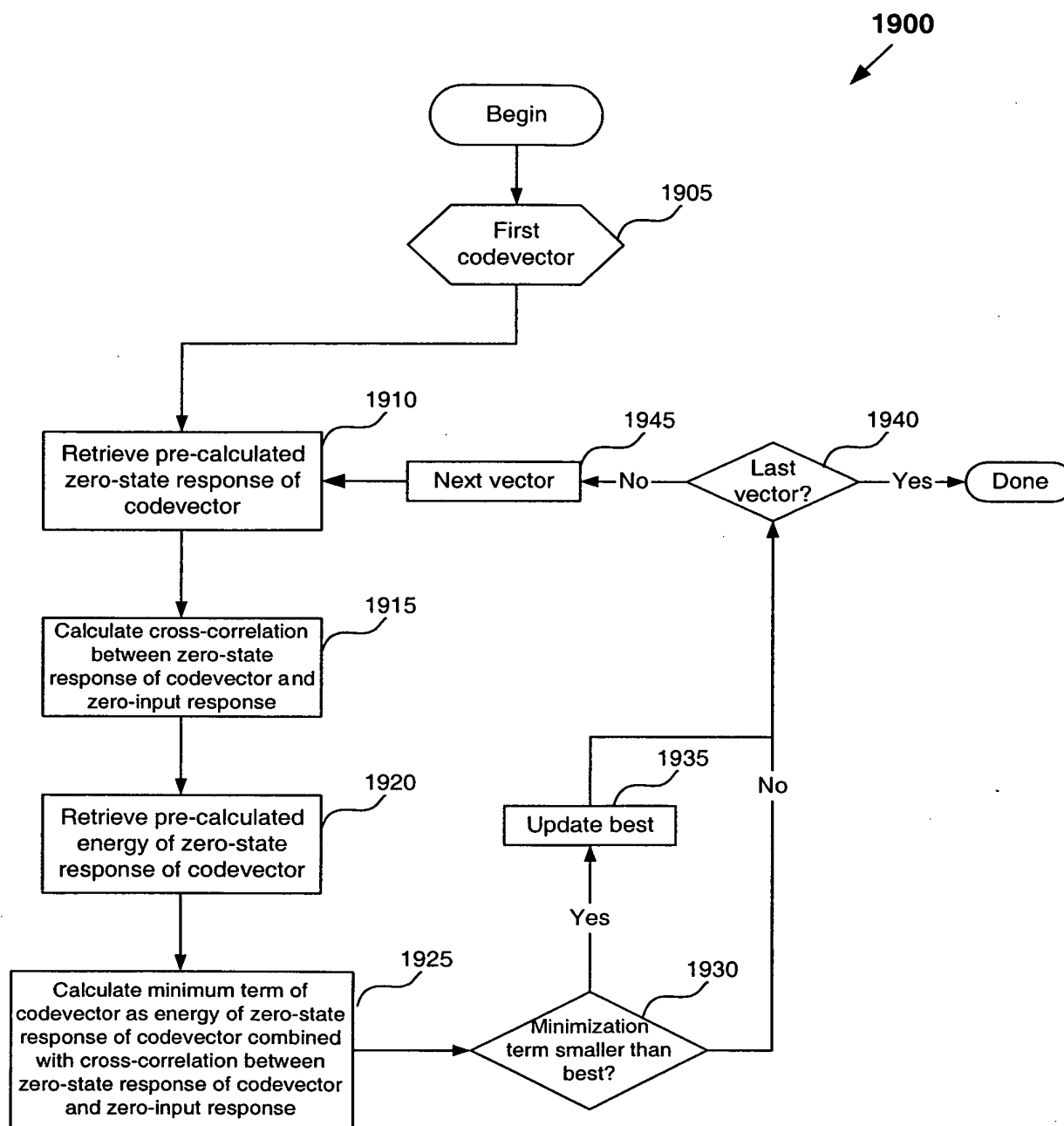


**FIG. 17**

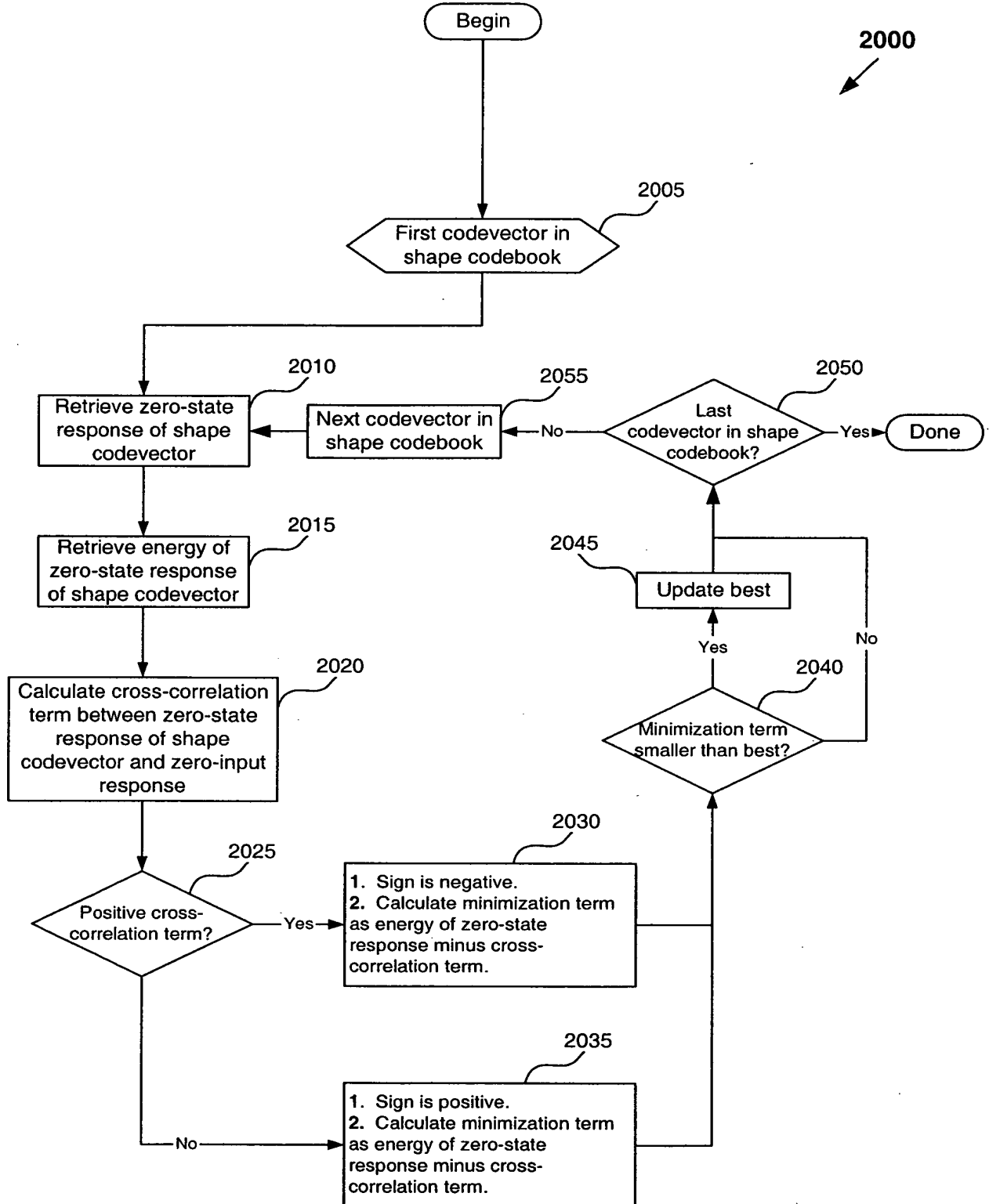




**FIG. 18**

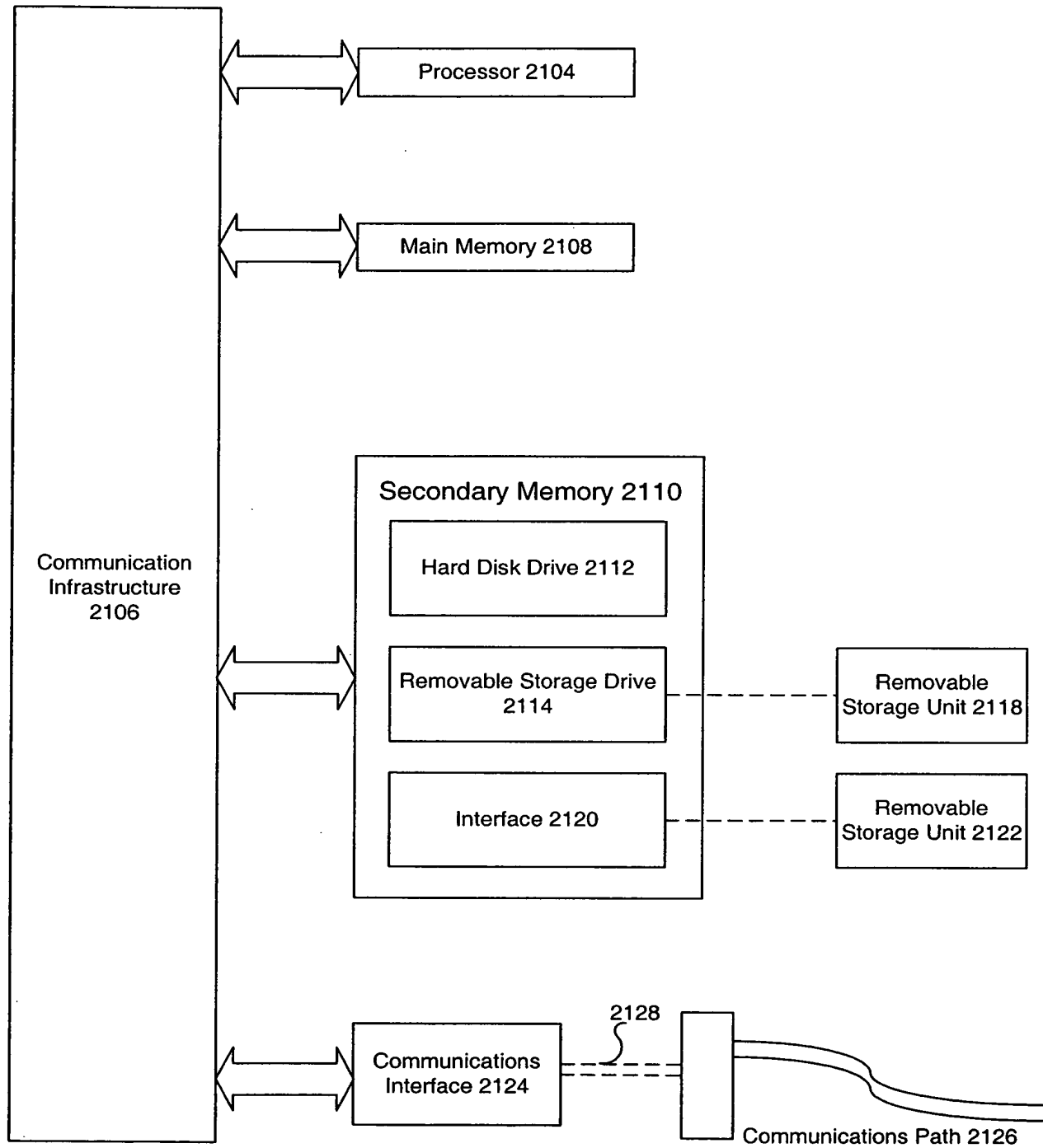


**FIG. 19**



**FIG. 20**

Computer System 2100



**FIG. 21**